

Title (en)

APPARATUS FOR CONTINUOUS ANNEALING OF STRIP AND METHOD FOR CONTINUOUS ANNEALING OF SAME

Title (de)

VORRICHTUNG ZUM DURCHLAUFGLÜHEN VON STREIFEN UND VERFAHREN ZUM DURCHLAUFGLÜHEN VON DAFÜR

Title (fr)

APPAREIL DE RECIUT CONTINU POUR UN RUBAN ET SON PROCÉDÉ DE RECIUT CONTINU

Publication

**EP 3088538 A4 20170111 (EN)**

Application

**EP 14873605 A 20141223**

Priority

- KR 20130163361 A 20131225
- KR 2014012705 W 20141223

Abstract (en)

[origin: EP3088538A1] The present invention relates to an apparatus for continuous annealing of a strip, capable of manufacturing a high-strength and highly ductile cold-rolled steel sheet having both excellent strength and ductility, and to a method for continuous annealing of a strip. The continuous annealing apparatus, according to the present invention, is capable of continuous annealing by cooling after heating, and then reheating, unlike an existing continuous annealing apparatus which heats only once and then cools or provides an overaging treatment. As a result, the continuous annealing apparatus, according to the present invention, can preliminarily render a homogeneous texture or control the texture as desired, and then perform another reheating heat treatment to stabilize the texture or control the shape thereof to a desired state. Also, provided is a continuous annealing apparatus and a continuous annealing method using the apparatus, the continuous annealing apparatus also capable of manufacturing high-strength steel having excellent processability and strength by using a low alloy, and capable of manufacturing a zinc-plated strip having excellent plated surfaces by controlling the thickness of elements and oxides enriched on the surface of the strip.

IPC 8 full level

**C21D 1/26** (2006.01); **C21D 1/40** (2006.01); **C21D 1/42** (2006.01); **C21D 1/52** (2006.01); **C21D 9/56** (2006.01); **C21D 9/573** (2006.01);  
**C22C 38/00** (2006.01)

CPC (source: EP KR US)

**C21D 1/26** (2013.01 - EP US); **C21D 1/34** (2013.01 - EP US); **C21D 1/40** (2013.01 - EP US); **C21D 1/42** (2013.01 - EP US);  
**C21D 1/52** (2013.01 - EP US); **C21D 1/60** (2013.01 - EP US); **C21D 1/613** (2013.01 - EP US); **C21D 1/773** (2013.01 - EP US);  
**C21D 9/52** (2013.01 - EP US); **C21D 9/56** (2013.01 - EP KR US); **C21D 9/561** (2013.01 - EP US); **C21D 9/573** (2013.01 - EP US);  
**C21D 9/5735** (2013.01 - KR); **C21D 9/60** (2013.01 - EP US); **C22C 38/001** (2013.01 - EP US); **C22C 38/002** (2013.01 - EP US);  
**C22C 38/004** (2013.01 - EP US); **C22C 38/02** (2013.01 - EP US); **C22C 38/04** (2013.01 - EP US); **C22C 38/06** (2013.01 - EP US);  
**C22C 38/14** (2013.01 - EP US); **C21D 2211/005** (2013.01 - EP US); **Y02P 10/25** (2015.11 - EP US)

Citation (search report)

- [XY] US 4705579 A 19871110 - FUJII TAISUKE [JP]
- [Y] JP 4110584 B2 20080702
- [X] US 2004099349 A1 20040527 - HOYDICK DAVID PAUL [US]
- [X] CN 101942603 A 20110112 - UNIV BEIJING SCIENCE & TECH, et al
- [X] CN 101671772 A 20100317 - UNIV YANSHAN
- See references of WO 2015099402A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**EP 3088538 A1 20161102; EP 3088538 A4 20170111; EP 3088538 B1 20190313;** CN 105849289 A 20160810; CN 105849289 B 20180828;  
JP 2017504716 A 20170209; JP 6641279 B2 20200205; KR 101568547 B1 20151111; KR 20150075311 A 20150703;  
US 10358691 B2 20190723; US 10604820 B2 20200331; US 2016355903 A1 20161208; US 2019276913 A1 20190912;  
WO 2015099402 A1 20150702; WO 2015099402 A8 20150917

DOCDB simple family (application)

**EP 14873605 A 20141223;** CN 201480070663 A 20141223; JP 2016541081 A 20141223; KR 20130163361 A 20131225;  
KR 2014012705 W 20141223; US 201415103078 A 20141223; US 201916426307 A 20190530